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<110> Tucker, Kenneth
Plosila, Laura

<120> Moraxella catarrhalis outer membrane proteins-106 polypeptide, gene sequence and uses thereof.

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Thr Gly Ala Asp Gly Asn Lys Asn Gln Ile Gly Val Lys Thr Thr Thr
965 970 975

Leu Thr Lys Thr Asp Ala Lys Gly Asp Lys Ala Ile Asn Phe Ser Val
980 985 990

Asn Ser Gly Asp Asp Lys Ala Leu Ile Asn Ala Lys Asp Ile Ala Asp
995 1000 1005

Asn Leu Asn Thr Leu Ala Gly Glu Ile Arg Asn Thr Lys Gly Thr
1010 1015 1020

Ala Asp Thr Ala Leu Gln Thr Phe Gln Val Lys Lys Val Lys Glu
1025 1030 1035

Asn Gly Asp Asp Asp Asn Asp Ala Asp Thr Ile Thr Val Gly Lys
1040 1045 1050

Asp Ala Lys Thr Asn Gln Val Asn Thr Leu Lys Leu Lys Gly Lys
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Asn Gly Leu Asp Ile Gln Thr Asn Lys Asp Gly Thr Val Thr Phe
1070 1075 1080

Gly Ile Asn Thr Gln Ser Gly Leu Lys Ala Gly Asn Asn Thr Thr
1085 1090 1095

Leu Asn Asn Asn Gly Leu Ser Ile Lys Asn Thr Ala Gly Asn Glu
1100 1105 1110

Gln Ile Gln Val Gly Ala Asp Gly Val Lys Phe Ala Lys Val Asn
1115 1120 1125

Asn Gly Val Val Gly Ala Gly Ile Asp Gly Thr Thr Arg Ile Thr
1130 1135 1140

Arg Asp Glu Ile Gly Phe Ala Gly Thr Asn Gly Ser Leu Asp Lys
1145 1150 1155

Ser Lys Pro His Leu Ser Lys Asp Gly Ile Asn Ala Gly Gly Lys
1160 1165 1170

Lys Ile Thr Asn Ile Gln Ser Gly Glu Ile Ala Gln Asn Ser Asn
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Asp Ala Val Thr Gly Gly Lys Ile Tyr Asp Leu Lys Thr Glu Leu
1190 1195 1200

Glu Asn Lys Ile Ser Ser Thr Ala Lys Thr Ala Gln Asn Ser Leu
1205 1210 1215

His Glu Phe Ser Val Ala Asp Glu Gln Gly Asn Asn Phe Thr Val
1220 1225 1230

Ser Asn Pro Tyr Ser Ser Tyr Asp Thr Ser Lys Thr Ser Asp Val
1235 1240 1245

Ile Thr Phe Ala Gly Glu Asn Gly Ile Thr Thr Lys Val Asn Lys
1250 1255 1260

Gly Val Val Arg Val Gly Ile Asp Gln Thr Lys Gly Leu Thr Thr
1265 1270 1275

Pro Lys Leu Thr Val Gly Asn Asn Asn Gly Lys Gly Ile Val Ile
1280 1285 1290

Asp Ser Gln Asn Gly Gln Asn Thr Ile Thr Gly Leu Ser Asn Thr
1295 1300 1305

Leu Ala Asn Val Thr Asn Asp Lys Gly Ser Val Arg Thr Thr Glu
1310 1315 1320

Gln Gly Lys Ile Ile Lys Asp Glu Asp Lys Thr Arg Ala Ala Ser
1325 1330 1335

Ile Val Asp Val Leu Ser Ala Gly Phe Asn Leu Gln Gly Asn Gly
1340 1345 1350

Glu Ala Val Asp Phe Val Ser Thr Tyr Asp Thr Val Asn Phe Ala
1355 1360 1365

Asp Gly Asn Ala Thr Thr Ala Lys Val Thr Tyr Asp Asp Thr Ser
1370 1375 1380

Lys Thr Ser Lys Val Val Tyr Asp Val Asn Val Asp Asp Thr Thr
1385 1390 1395

Ile Glu Val Lys Asp Lys Lys Leu Gly Val Lys Thr Thr Thr Leu
1400 1405 1410

Thr Ser Thr Gly Thr Gly Ala Asn Lys Phe Ala Leu Ser Asn Gln
1415 1420 1425

Ala Thr Gly Asp Ala Leu Val Lys Ala Ser Asp Ile Val Ala His
1430 1435 1440

Leu Asn Thr Leu Ser Gly Asp Ile Gln Thr Ala Lys Gly Ala Ser
1445 1450 1455

Gln Ala Asn Ser Ser Ala Gly Tyr Val Asp Ala Asp Gly Asn Lys
1460 1465 1470

Val Ile Tyr Asp Ser Thr Asp Asn Lys Tyr Tyr Gln Ala Lys Asn
1475 1480 1485

Asp Gly Thr Val Asp Lys Thr Lys Glu Val Ala Lys Asp Lys Leu

1490 1495 1500

Val Ala Gln Ala Gln Thr Pro Asp Gly Thr Leu Ala Gln Met Asn
1505 1510 1515

Val Lys Ser Val Ile Asn Lys Glu Gln Val Asn Asp Ala Asn Lys
1520 1525 1530

Lys Gln Gly Ile Asn Glu Asp Asn Ala Phe Val Lys Gly Leu Glu
1535 1540 1545

Lys Ala Ala Ser Asp Asn Lys Thr Lys Asn Ala Ala Val Thr Val
1550 1555 1560

Gly Asp Leu Asn Ala Val Ala Gln Thr Pro Leu Thr Phe Ala Gly
1565 1570 1575

Asp Thr Gly Thr Thr Ala Lys Lys Leu Gly Glu Thr Leu Thr Ile
1580 1585 1590

Lys Gly Gly Gln Thr Asp Thr Asn Lys Leu Thr Asp Asn Asn Ile
1595 1600 1605

Gly Val Val Ala Gly Thr Asp Gly Phe Thr Val Lys Leu Ala Lys
1610 1615 1620

Asp Leu Thr Asn Leu Asn Ser Val Asn Ala Gly Gly Thr Lys Ile
1625 1630 1635

Asp Asp Lys Gly Val Ser Phe Val Asp Ser Ser Gly Gln Ala Lys
1640 1645 1650

Ala Asn Thr Pro Val Leu Ser Ala Asn Gly Leu Asp Leu Gly Gly
1655 1660 1665

Lys Val Ile Ser Asn Val Gly Lys Gly Thr Lys Asp Thr Asp Ala
1670 1675 1680

Ala Asn Val Gln Gln Leu Asn Glu Val Arg Asn Leu Leu Gly Leu
1685 1690 1695

Gly Asn Ala Gly Asn Asp Asn Ala Asp Gly Asn Gln Val Asn Ile
1700 1705 1710

Ala Asp Ile Lys Lys Asp Pro Asn Ser Gly Ser Ser Ser Asn Arg
1715 1720 1725

Thr Val Ile Lys Ala Gly Thr Val Leu Gly Gly Lys Gly Asn Asn
1730 1735 1740

Asp Thr Glu Lys Leu Ala Thr Gly Gly Val Gln Val Gly Val Asp
1745 1750 1755

Lys Asp Gly Asn Ala Asn Gly Asp Leu Ser Asn Val Trp Val Lys
1760 1765 1770

Thr Gln Lys Asp Gly Ser Lys Lys Ala Leu Leu Ala Thr Tyr Asn
1775 1780 1785

Ala Ala Gly Gln Thr Asn Tyr Leu Thr Asn Asn Pro Ala Glu Ala
1790 1795 1800

Ile Asp Arg Ile Asn Glu Gln Gly Ile Arg Phe Phe His Val Asn
1805 1810 1815

Asp Gly Asn Gln Glu Pro Val Val Gln Gly Arg Asn Gly Ile Asp
1820 1825 1830

Ser Ser Ala Ser Gly Lys His Ser Val Ala Ile Gly Phe Gln Ala
1835 1840 1845

Lys Ala Asp Gly Glu Ala Ala Val Ala Ile Gly Arg Gln Thr Gln
1850 1855 1860

Ala Gly Asn Gln Ser Ile Ala Ile Gly Asp Asn Ala Gln Ala Thr
1865 1870 1875

Gly Asp Gln Ser Ile Ala Ile Gly Thr Gly Asn Val Val Ala Gly
1880 1885 1890

Lys His Ser Gly Ala Ile Gly Asp Pro Ser Thr Val Lys Ala Asp
1895 1900 1905

Asn Ser Tyr Ser Val Gly Asn Asn Asn Gln Phe Thr Asp Ala Thr
1910 1915 1920

Gln Thr Asp Val Phe Gly Val Gly Asn Asn Ile Thr Val Thr Glu
1925 1930 1935

Ser Asn Ser Val Ala Leu Gly Ser Asn Ser Ala Ile Ser Ala Gly
1940 1945 1950

Thr His Ala Gly Thr Gln Ala Lys Lys Ser Asp Gly Thr Ala Gly
1955 1960 1965

Thr Thr Thr Thr Ala Gly Ala Thr Gly Thr Val Lys Gly Phe Ala
1970 1975 1980

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Gly Gln  Thr Ala Val Gly Ala  Val Ser Val Gly Ala  Ser Gly Ala
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Glu Arg  Arg Ile Gln Asn Val  Ala Ala Gly Glu Val  Ser Ala Thr
    2000                 2005                 2010

Ser Thr  Asp Ala Val Asn Gly  Ser Gln Leu Tyr Lys  Ala Thr Gln
    2015                 2020                 2025

Gly Ile  Ala Asn Ala Thr Asn  Glu Leu Asp His Arg  Ile His Gln
    2030                 2035                 2040

Asn Glu  Asn Lys Ala Asn Ala  Gly Ile Ser Ser Ala  Met Ala Met
    2045                 2050                 2055

Ala Ser  Met Pro Gln Ala Tyr  Ile Pro Gly Arg Ser  Met Val Thr
    2060                 2065                 2070

Gly Gly  Ile Ala Thr His Asn  Gly Gln Gly Ala Val  Ala Val Gly
    2075                 2080                 2085

Leu Ser  Lys Leu Ser Asp Asn  Gly Gln Trp Val Phe  Lys Ile Asn
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Gly Phe  His Phe
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